

# Concept Note

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## **Greater Accra Climate Resilient and Integrated Development Project**

Ghana | International Bank for Reconstruction and Development and International  
Development Association (The World Bank)

26 May 2018



**GREEN  
CLIMATE  
FUND**

# Concept Note

Project/Programme Title:	<b>Greater Accra Climate Resilient and Integrated Development Project</b>
Country(ies):	Ghana
National Designated Authority(ies) (NDA):	Ministry of Finance
Accredited Entity(ies) (AE):	The World Bank
Date of first submission/ version number:	<u>2018-05-25 V.1</u>
Date of current submission/ version number	<u>2018-05-25 V.1</u>



**GREEN  
CLIMATE  
FUND**

A. Project/Programme Summary (max. 1 page)			
A.1. Project or programme	<input checked="" type="checkbox"/> <b>Project</b> <input type="checkbox"/> Programme	A.2. Public or private sector	<input checked="" type="checkbox"/> <b>Public sector</b> <input type="checkbox"/> Private sector
A.3. Is the CN submitted in response to an RFP?	Yes <input type="checkbox"/> <b>No</b> <input checked="" type="checkbox"/> If yes, specify the RFP: _____	A.4. Confidentiality <sup>1</sup>	<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> <b>Not confidential</b>
A.5. Indicate the result areas for the project/programme	<p><b>Mitigation:</b> Reduced emissions from:</p> <input type="checkbox"/> Energy access and power generation <input type="checkbox"/> Low emission transport <input type="checkbox"/> Buildings, cities and industries and appliances <input type="checkbox"/> Forestry and land use <p><b>Adaptation:</b> Increased resilience of:</p> <input checked="" type="checkbox"/> <b>Most vulnerable people and communities</b> <input type="checkbox"/> Health and well-being, and food and water security <input checked="" type="checkbox"/> <b>Infrastructure and built environment</b> <input type="checkbox"/> Ecosystem and ecosystem services		
A.6. Estimated mitigation impact (tCO <sub>2</sub> eq over lifespan)		A.7. Estimated adaptation impact (number of direct beneficiaries and % of population)	2.5 million 10% of Ghana , 55% of Greater Accra
A.8. Indicative total project cost (GCF + co-finance)	Amount: USD 200 million	A.9. Indicative GCF funding requested	Amount: USD 100 million
A.10. Mark the type of financial instrument requested for the GCF funding	<input checked="" type="checkbox"/> <b>Grant</b> <input type="checkbox"/> Reimbursable grant <input type="checkbox"/> Guarantees <input type="checkbox"/> Equity <input type="checkbox"/> Subordinated loan <input type="checkbox"/> Senior Loan <input type="checkbox"/> Other: specify _____		
A.11. Estimated duration of project/ programme:	a) disbursement period: <b>Jan 2019 – Dec 2023</b> b) repayment period, if applicable:	A.12. Estimated project/ Programme lifespan	This refers to the total period over which the investment is effective.
A.13. Is funding from the Project Preparation Facility requested? <sup>2</sup>	Yes <input type="checkbox"/> <b>No</b> <input checked="" type="checkbox"/> Other support received <input type="checkbox"/> If so, by who:	A.14. ESS category <sup>3</sup>	<input checked="" type="checkbox"/> <b>A or I-1</b> <input type="checkbox"/> B or I-2 <input type="checkbox"/> C or I-3
A.15. Is the CN aligned with your accreditation standard?	<b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <input type="checkbox"/>	A.16. Has the CN been shared with the NDA?	<b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <input type="checkbox"/>
A.17. AMA signed (if submitted by AE)	<b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <input type="checkbox"/> If no, specify the status of AMA negotiations and expected date of signing:	A.18. Is the CN included in the Entity Work Programme?	<b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <input type="checkbox"/>
A.19. Project/Programme rationale, objectives and approach of programme/project (max 100 words)	<p>The <b>Greater Accra Climate Resilient and Integrated Development Project</b> supports greater Accra in adapting its drainage and flood management system as well as vulnerable low-income communities to the projected impacts of climate change. The project has the objective to (i) reduce flood impacts, (ii) improve climate resilience and economic development; and (iii) increase access to services, infrastructure and housing in most vulnerable informal settlements within Greater Accra Region. It will achieve this through three components focusing on drainage and early warning system, solid waste management and support to low income communities in the Odaw basin.</p>		

<sup>1</sup> Concept notes (or sections of) not marked as confidential may be published in accordance with the Information Disclosure Policy ([Decision B.12/35](#)) and the Review of the Initial Proposal Approval Process ([Decision B.17/18](#)).

<sup>2</sup> See [here](#) for access to project preparation support request template and guidelines

<sup>3</sup> Refer to the Fund's environmental and social safeguards ([Decision B.07/02](#))



## PROJECT / PROGRAMME CONCEPT NOTE Template V.2.2

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## **B. Project/Programme Information (max. 8 pages)**

### **B.1. Context and baseline (max. 2 pages)**

#### **Introduction**

Ghana is one of the countries most affected by the projected impacts of climate change in West Africa. A number of studies have identified the potential impact of climate change to livelihoods and the economy of Ghana. Notably greater Accra needs to rapidly adapt to the projected climate change impacts, due to its pronounced location at the Gulf of Guinea and coast surge, its rapid urbanization and limited flood manage infrastructure and expected influx of the population affected by climate change in Northern Ghana. Ghana has on the other hand taken proactive steps toward a well-developed national Climate Change Policy and associated action plans to which this funding proposal to the Green Climate Fund responds.

#### **Projected climate change impacts**

As a consequence of global climate change, the annual mean temperature of Ghana is projected to rise in both low and high warming scenarios. In the low warming scenario, a countrywide warming of 1°C is projected by the 2030s and the 2040s. In the high warming scenario, a temperature increase of 1.3°C and 1.8°C is projected for the 2030s and the 2040s respectively. Climate models project a more pronounced increase in heat extremes in the Southern part of Ghana, which are more intense in the high warming scenario. Extreme droughts are projected to primarily affect the Brong Ahafo and Ashanti regions, consistently in both warming scenarios, even though the amplitude of the effects is projected to be lower in the low warming scenario. Despite larger uncertainty, climate models tend to indicate an increase in extreme wet event conditions in the Northern regions of Ghana.

These changing precipitation and temperature patterns are projected to severely affect economic growth and poverty eradication efforts. By mid-century (2050), the reduction in GDP per capita is estimated to be in range of 6.5 to 11.4 percent in the low and high warming scenario, respectively, compared to a scenario without climate change. Even by 2030, an estimated 400,000 additional people are projected to live below the poverty line as a consequence of climate change.

Rural-to-urban migration has been an ongoing trend in Ghana and has accelerated beyond the absorptive capacities of major municipalities such as Accra in the Southern regions of Ghana. Projected socioeconomic and climate-related factors in rural and agrarian areas are likely to exacerbate this trend. However, Middle Belt and Southern cities such as Kumasi and Accra, whose economies primarily rely on services and industry, could also be affected by extreme heat, dry and wet events, potentially reducing their ability to further absorb this growing population and workforce and to generate economic opportunities in urban areas. As a consequence, the growth of informal settlements could accelerate, for example, and lead to adverse impacts on health, poverty, and could also lead to an increasing risk of social instability in urban areas.

#### **National climate change policy**

The National Climate Change Policy (NCCP) is Ghana's integrated response to climate change and disaster risk reduction. The NCCP provides the institutional framework for climate change and disaster risk management, emphasizing the commitment and preparedness of the government and other stakeholders in these areas. It affirms the countries resolve to lessen the potential hardships that climate change impacts may pose to the sustainable development of Ghana. It provides strategic direction and coordinates issues of climate change in Ghana, bearing in mind its linkages with all the key sectors and national development.

The NCCP was launched in 2013 to institutionalize mechanisms to effectively manage climate change and disasters in Ghana. The policy is hinged on a number of assessment and national development policy documents including the Ghana Shared Growth Development Agenda (GSGDA I) (2010-2013), the GSGDA II (2014-2017) and stakeholder consultations. The NCCP identified ten focus areas for addressing Ghana's climate change challenges and opportunities with specific programs for addressing the critical actions. This funding proposal is related to priority action: Build climate resilient infrastructure.

- Develop climate-resilient agriculture and food security systems
- **Build climate-resilient infrastructure**
- Increase resilience of vulnerable communities to climate-related risks
- Increase carbon sinks
- Improve management and resilience of terrestrial, aquatic and marine ecosystems
- Address impacts of climate change on human health
- Minimize impacts of climate change on access to water and sanitation
- Address gender issues in climate change
- Address climate change and migration, and

- Minimize greenhouse gas emissions.

In 2012 the Government of Ghana launched the National Climate Change Adaptation Strategy (NCCAS). The aim is to increase societal awareness and preparedness for climate change and enhance the mainstreaming of climate change into national development planning. This is to be achieved through building capacity in terms of infrastructure and knowledge to deal with climate change impacts and reduce vulnerability in key sectors, ecosystems, districts and regions of the country. The NCCAS seeks to ensure a consistent, comprehensive and a targeted approach to in-creasing climate resilience and decreasing vulnerability of the population. It aims to:

- deepen awareness and sensitization of the general public and policy makers about the critical role of adaptation in national development efforts;
- position Ghana to draw funding for meeting its national adaptation needs;
- strengthen international recognition to facilitate action;
- facilitate the mainstreaming of climate change and disaster risk reduction into national development.

### Intended Nationally Determined Contributions

Ghana's Intended Nationally Determined Contributions (INDC) – submitted in 2015 - also provides policy direction for government's intervention on mitigation and adaptation. Based on her national circumstances, Ghana submitted intended mitigation and adaptation actions, which summarize the priority actions of government within the next decade on mitigation and adaptation. The INDCs proposed a funding need of more than USD 22.6 billion, of which 9.8 billion will be required for mitigation and 12.8 billion for adaptation. Ghana intends to mobilize 6.3 billion domestically and the remaining resources internationally (UNFCCC, 2015). Ghana's INDC was submitted to UNFCCC in 2015 and is currently being updated upon which the final Ghana Nationally Determined Contributions (GH – NDC) will be submitted. Ghana envisions mobilizing about 22% from the Green Climate Fund and 4.9% from other multilateral funds including the World Bank.

The INDC specifies financing needs of US\$ 12.79 billion for adaptation and about US\$ 9.8 billion for mitigation. Among the adaptation financing needs *city wide resilient infrastructure* is estimated with US\$3.556 billion one of the main priority for adaption financing. In addition *early warning and disaster prevention* is estimated at US\$ 403 million of adaptation financing needs. The Greater Accra Resilient and Integrated Development Project is thus not just in line with those priorities, it will also be an important step for Ghana toward mobilizing resources for climate change adaptation in line with its INDC.

### Accra Climate Risk Mitigation Strategy

The project design is informed by a series of consultations with communities, local government and central government since the floods, which affected Ghana in June 2015. Following the floods of June 2015 an impact assessment has been conducted, which largely involved local governments and local communities followed by the City Strength diagnostic in 2016 and the Accra Climate Risk Mitigation Strategy in 2017. The project team is currently working closely with the 16 MMDAs of Greater Accra to better understand priorities for the strengthening flood management.

## B.2. Project/Programme description (max. 3 pages)

### Background

Greater Accra, Ghana's capital and economic hub at the Gulf of Guinea, is particularly vulnerable to the consequences of climate related risks. The city's sensitivity is exacerbated by a lack of climate sensitive urban planning and weak enforcement, a drainage network, which is not keeping pace with the rapid expansion of the city, and a growing solid waste management crisis leading to siltation, environmental pollution and clogging of the drainage network. Rural to urban migration, which is increasingly fuelled by climate risks in Northern Ghana, will contribute to the growth of informal settlements in Greater Accra, which are largely located in flood affected urban areas. Estimations point at US\$ 750 million to US\$ 1 billion, which would be required from public and private resources to address the problem of frequent flood flooding and prevailing climate risks in greater Accra.

The Government of Ghana has therefore requested the World Bank to prepare the **Greater Accra Climate Resilient and Integrated Development Project** addressing the intertwined challenges of flooding and increasing climate risks, weak urban planning and management of solid waste and rapidly expanding informal settlements in vulnerable areas. To address the complexity and magnitude of challenges related to climate proofing urban development in greater Accra, the project is part of a **multi-phased programmatic approach**, where the World Bank would provide financing in three phases to address challenges related to drainage, solid waste management and community upgrading. The project therefore aims to be **transformative** laying the foundation for different development partners, private investors and project developers, government and climate finance to address these challenges in cascading and phased approach.

Climate finance for adaptation will be particularly important to ensure that these infrastructure investments, which will shape Accra's urban development for the next decades, are now conducted in a climate smart design and approach.

The **objectives** of the Greater Accra Climate Resilient and Integrated Development Project is (i) to strengthen flood and solid waste management, (ii) improve the living conditions of the most climate vulnerable communities in the Odaw basin, and (iii) foster adaptation of the flood management infrastructure to climate change in Greater Accra Region.

As part of this transformative project, which would among others be financed by a US\$ 100 million IDA credit, adaptation co-financing of US\$ 100 million is requested from the Green Climate Fund for climate proofing the drainage management infrastructure, supporting end to end early warning, climate proving community infrastructure and climate smart urban development planning.

The Greater Accra Resilient and Integrated Development Project is built around four **components** (1) Drainage and flood management improvements within the Odaw Drainage Basin, (2) Improvements in solid waste management capacity including minimizing solid waste in waterways, (3) Support to most vulnerable communities within the Odaw Drainage Basin, and (4) Strengthening capacity for planning, coordination, monitoring and evaluation;

*Component 1: Drainage and flood management improvements within the Odaw Drainage Basin (US\$54 million IDA and US\$90 million Green Climate Fund):* This will include investments in improving and climate proofing drainage and flood management infrastructure, including upstream water conservation, extension of the hydraulic capacity and development of green spaces and flood retention areas in the Odaw drainage basin, as well as improved flood warning and response capacity in Greater Accra.

- Sub-component 1.1. Improvements in urban drainage and flood management in Odaw drainage basin (US\$ 50 million IDA and US\$75 million Green Climate Fund). This would include, in the first years, urgent actions to prepare for recurrent floods such as dredging, de-silting, rehabilitation of pumping stations, and rehabilitation of damaged drains. In the latter years, measures will include complete improvement of weir drainage including widening of Odaw drain; rehabilitation of currently weir; extension of major drainage channels; construction of secondary channel lift stations to prevent back flooding along with upstream soil and water conservation, development of green spaces, and climate proofing drainage infrastructure. The project would also support several pre-feasibility and feasibility studies addressing climate resilient spatial planning for other basins in greater Accra (other than Odaw basin) and mobilizing private investors for example for a climate smart inner city redevelopment.
- Sub-component 1.2. Improvement in flood forecasting, warning and disaster response (US\$ 4 million IDA and US\$ 15 million Green Climate Fund). This component will support Flash Flood Guidance and Early Warning & Response System Improvement in Greater Accra Region, which will include improving flood forecasting (observation infrastructure, system integration and IT network, service delivery), and, coordination, warning and response at Greater Accra Region and MMDA levels, as well as last mile connectivity with targeted communities prone to recurrent flooding in Odaw drainage basin.

*Component 2: Improvements in solid waste management capacity including minimizing solid waste in waterways (US\$15 million IDA).* Activities under this component will focus on community-level activities in the area where the drainage and sanitation improvements are located, and to a lesser extent on metropolitan-wide activities.

- Sub-component 2.1. Community-level solid waste management (US\$5 million IDA). Activities will support (i) improving solid waste collection services, (ii) community mobilization and awareness raising, and (iii) the application of a results-based incentive approach, which will consist of providing incentives to these communities based on independently verified outcomes (improved waste collection).
- Sub-component 2.2. Improving solid waste management capacity in Greater Accra (US\$10 million IDA). This sub-component will include a large-scale metro-wide information, education and communication campaign. It will also support the identification and technical assessment of one or more new waste recycling, treatment and disposal facility in the Greater Accra to replace the current Kpone Landfill, which exceeds capacity.

*Component 3: Support to most vulnerable communities within the Odaw Drainage Basin (US\$25 million IDA and US\$ 5 million Green Climate Fund).* In conjunction with the improvements in drainage, and solid waste management investments, highly flood prone informal settlements and Zongos will be identified in the Odaw drainage basin to benefit from participatory community upgrading and participatory resettlement.

- Sub-component 3.1. Participatory community upgrading (US\$15 million IDA and US\$ 5 million Green Climate Fund). This will support those communities that are located in the most flood prone areas within the Odaw drainage basin. It will finance participatory community upgrading to reduce vulnerability to climate risks, flooding and to improve living conditions. Concretely it will likely support: (i) upgrading of basic infrastructure and services prioritized by most vulnerable communities and supported by geospatial, social vulnerability, climate risk information and asset management diagnostics. This will likely include, construction or rehabilitation of tertiary drains, local roads, pedestrian paths, schools, health centers, community sanitation facilities and open spaces, street lighting, informal markets, and support to incremental and climate resilient housing improvements; (ii) measures to integrate the targeted informal settlement with surrounding settlements and primary city infrastructure through access roads and other measures

identified by the targeted communities; and (iii) community based disaster warning and preparedness activities including identification of safe shelters, and flood preparedness through awareness campaign, training and appointment of emergency volunteers.

- Sub-component 3.2. Participatory resettlement (US\$10 million IDA). Resettlement will be minimized and only for households residing in areas, which are still considered hazardous after project interventions, or in right of ways for infrastructure investment proposed under components 1 and 2. It aims to strengthen the affected people's resilience to external risks by providing access to housing on safer grounds and with basic services. Extensive consultations will be held with Project Affected Persons (PAPs), to allow flexibility, ensure minimal economic dislocation, and cater to varying needs of PAPs.

*Component 4: Strengthening capacity for planning, coordination, monitoring and evaluation (US \$6 million IDA and US\$ 5 million Green Climate Fund).* This will include support for climate smart urban development planning, facilitating access to climate risk information (e.g. through geonode portals) and improving planning and coordination between the Metropolitan, Municipal and District Assemblies in Greater Accra, Ministries, Departments and Agencies and other relevant stakeholders.

#### **Activities to be financed by the Green Climate Fund**

Green Climate Fund (GCF) funding would complement IDA funding to cover the **additionality costs** for climate proofing the drainage and flood management infrastructure and support end-to-end early warning systems. Activities are related to component 1 (sub-components 1.1 and sub-component 1.2), component 3 and component 4.

The identification of these additionality costs is supported by a detailed hydrological-hydraulic model for the Odaw basin, greater Accra's main drainage basin, which allows the modelling of future climate scenarios and thus estimation of additionality costs related to climate change adaptation. This model supports evidence based decision making for the identification and selection of different flood mitigation measures in the basin for 1:10 years (T10), 1:25 years (T25) and 1:50 years (T50) return periods. Considering estimated climate change scenarios for the time horizon 2050 and 2075, it is estimated what a T25 safety level would be now (2018), would only result in a T18 safety level by 2050. Additional flood protection measures like flood walls, flood plain lowering could mitigate this climate effect and create a safe at T25 scenario again for 2050 (cost estimations point at US\$ 35 million). As Ghana is committed to achieve a protection level for a 1:50 years flood return period (T50) and with a climate change time horizon for 2075 the estimated costs for climate proofing the drainage infrastructure may even be more than double. In addition, the project would support rolling out climate smart urban water resources management and development for all of greater Accra (outside of the Odaw basin), for example by promoting new climate smart, decentralized micro retention basins, for example so called "wadis" for localized infiltration.

GCF funding will cover the additionality costs to adapt these systems to climate change; IDA funding will focus on expanding the primary drainage network and addressing critical short, medium and long term issues in the drainage network, which are inherent to its design.

In addition GCF will support Flash Flood Guidance and Early Warning & Response System Improvement in Greater Accra Region, which will include improving flood forecasting (observation infrastructure, system integration and IT network, service delivery), and, co-ordination, warning and response at Greater Accra Region and MMDA levels, as well as last mile connectivity with targeted communities prone to recurrent flooding in Odaw drainage basin. In addition institutional support will be provided for HSD, NADMO, WRC and GMet to advance the integration of early warning services in Ghana.

Under component 3, GCF funding will support the installation of flood shelters in vulnerable communities and support flood awareness and communication campaigns to the most vulnerable communities. Community based mapping of flood-affected areas will empower local communities to better plan and adapt to climate change.

Under component 4, GCF funding will support the improved planning and coordination toward a climate smart urban planning in greater Accra. Supported activities include providing access to information (through geo-portal), facilitating participatory climate smart urban planning at the level of MMDAs and between MMDAs through joint planning boards, capacity building and training in climate smart building standards, design and enforcement.

### **B.3. Expected project results aligned with the GCF investment criteria (max. 3 pages)**

#### **Expected project results**

The project thrives for inclusive solutions addressing climate risks of vulnerable communities through the extension of the flood and drainage management infrastructure and by providing end-to end early warning and response capacity to the population of Greater Accra. With regard to the infrastructure improvements (extension and climate proofing of drainage infrastructure, community based upgrading of flood affected settlements) those will be done in a pro-poor approach, ensuring that the benefits are targeted to those parts of the population most in need.

Expected total number of direct and indirect beneficiaries, disaggregated by gender (reduced vulnerability or increased resilience)

- 4.5 million beneficiaries out of which: 1.1 million direct (male and female), 3.4 million indirect (male and female)
- Number of beneficiaries relative to total population, disaggregated by gender:  
 DIRECT: 24% of total population, 50% of vulnerable population  
 INDIRECT: 100% of total population, 100% of vulnerable population  
 GENDER: 50% male, 50% female

Indirect beneficiaries refer to the population of the Greater Accra region (estimated at 4.5 million inhabitants in 2016), while the number of direct beneficiaries refers to the population benefitting from climate proofing the drainage network within the Odaw Basin in Greater Accra.

**Paradigm shift potential**

The need for a paradigm shift away from a “laissez-faire” approach to drainage and solid waste management in greater Accra towards responsible institutions with proper enforcement of resilient spatial planning, sustained operation and maintenance of the drainage and flood protection infrastructure as well as adequate solid waste management systems for Greater Accra is recognized throughout all levels of government.

The project has a holistic approach for addressing frequent flooding and climate risks in Greater Accra. It does this by addressing the intertwined nature of weak drainage and solid waste management combined with targeted measures to support vulnerable communities to flood-proof their neighborhoods as well as institutional support to sustain operation and maintenance of the drainage network and strengthening the involved institutions. Indeed, the project has the ambition and potential to foster this paradigm shift through the following actions:

- providing integrated solutions addressing solid waste management and drainage improvements at the same time;
- a pro-poor approach that will target particularly vulnerable communities through structural improvements, e.g. by providing green infrastructure or sports facilities in flood affected areas;
- decision making for flood protection infrastructure investments based on an evidence based approach and a rigorous analysis of the impact potential of different structural and on-structural measures;
- institutional support and fostering institutional change in the way how spatial planning is enforced across different jurisdictions in Greater Accra;
- fostering a sustainable financing mechanism for sustaining drainage and flood management infrastructure;
- building partnerships and alliances with different partners in government and with development partners to mobilize resources for resilient urban development in Greater Accra;
- a project design, which is meant to be rolled out as a series of investment projects covering different areas in Greater Accra;
- phasing, private sector, flagship for government and World Bank

*Strategy for Scaling-up and Replication*

The investment needs for extending the drainage network in Greater Accra, coastal protection, solid waste management systems, end-to-end early warning systems and climate proofing this public infrastructure are substantial, estimated between US\$ 750 million and US\$ 1 billion of investment needs. This calls for a collaborative effort from government, communities, private sector and different financing and development partners to scale up and replicate these efforts for different areas of Greater Accra. The project is therefore designed to be implemented as a series of investment projects with potentially additional IDA resources to be provided in future and with the active mobilization of additional resources from other development partners and private sector.

*Key Partnerships for Project Broadening and Scaling-up*

Mobilizing partners is essential to achieve the objectives of the project. The project team has therefore reached out to all development partners in Ghana as well as the private sector to mobilize technical and financial support to the project. On September 22 a donor meeting was conducted to foster the coordination of different efforts for resilient urban development in Greater Accra. At this stage currently about US\$ 10 million have been indicated by SECO to potentially contribute to resilient urban development practices and knowledge sharing. The Netherlands may be interested in contributing to the financing of the drainage measures (notably dredging). It is expected that further partners would contribute to the project.

*Potential for knowledge sharing and learning*

The project is designed as a “platform” where different initiatives from the government, communities, private sector and development partners can contribute to and exchange about best practice solutions and lessons learnt from previous projects. The project will promote the open knowledge sharing among others by promoting an open data platform (geo-node), where all assessments, data and information will be made available to all relevant stakeholders.

*Contribution for the creation of an enabling environment*

The project will substantially invest in supporting and strengthening the different institutions involved in the project – notably the Hydrological Services Department (HSD), the Special Greater Accra Sanitation Office (SGASO) as well as Metropolitan, Municipal and District Assemblies (MMDA) in Greater Accra – to deliver adequate services. The project will thereby support ongoing institutional reform processes to strengthen the enabling environment. For example, the government is currently discussing the options to empower HSD by turning its institutional mandate into that of an agency, which would allow HSD to better access and manage resources for the operation and maintenance of the drainage network. Support to SGASO will strengthen the inter-jurisdictional coordination on drainage, flood and solid waste management in greater Accra. MMDAs will be supported to better enforce their spatial planning framework.

#### *Contribution to regulatory framework and policies*

The project will support the implementation of Ghana's spatial planning framework in Greater Accra, fostering a paradigm shift toward the early inclusion of a climate risk analysis;

#### **Sustainable development potential**

Even though the total cost of the direct and indirect financial benefits of the proposed operation are hard to quantify, the long-term benefits, in terms of lives and properties saved, and new economic opportunities will be much higher than the implementation cost. The direct project beneficiaries will be (i) families, businesses, and offices located within one selected critical basin and (ii) entire Greater Accra Region's population benefiting from better drainage, solid waste management, and flood preparedness. Indirectly the entire Greater Accra region will benefit due to the improvement in the living conditions, basic services (including solid and liquid waste), and reduction in water-borne diseases in the central business district.

Key outcomes of the proposed operation include benefits through:

- Improved preparedness to flooding: The proposed operation will include benefits from improved drainage, and flood management capacity in one drainage basin. Entire population living within Odaw river basin will indirectly benefit. A major study in US<sup>4</sup> has found that in general, government flood risk management had a benefit cost ratio of 5.0.
- Protection of key Investments: An estimated xx USD worth of economic assets are located in Odaw river basin, which can be potentially protected through project investments.
- Reduction in poverty caused by disaster and climate risks and overall improvement in quality of life in most vulnerable communities: Increased capacity of the Government at all levels to monitor, manage and inland and coastal flooding risks; and reduced vulnerability of infrastructure and public assets, households living in risk prone areas, reduction in income loss (livelihood, property and business) from flooding.

#### **Needs of the recipient**

As a consequence of global climate change, the annual mean temperature of Ghana is projected to rise in both low and high warming scenarios. In the low warming scenario, a countrywide warming of 1°C is projected by the 2030s and the 2040s. In the high warming scenario, a temperature increase of 1.3°C and 1.8°C is projected for the 2030s and the 2040s respectively. Climate models project a more pronounced increase in heat extremes in the Southern part of Ghana, which are more intense in the high warming scenario. Extreme droughts are projected to primarily affect the Brong Ahafo and Ashanti regions, consistently in both warming scenarios, even though the amplitude of the effects is projected to be lower in the low warming scenario. Despite larger uncertainty, climate models tend to indicate an increase in extreme wet event conditions in the Northern regions of Ghana.

These changing precipitation and temperature patterns are projected to severely affect economic growth and poverty eradication efforts. By mid-century (2050), the reduction in GDP per capita is estimated to be in range of 6.5 to 11.4 percent in the low and high warming scenario, respectively, compared to a scenario without climate change. Even by 2030, an estimated 400,000 additional people are projected to live below the poverty line as a consequence of climate change.

Rural-to-urban migration has been an ongoing trend in Ghana and has accelerated beyond the absorptive capacities of major municipalities such as Accra in the Southern regions of Ghana. Projected socioeconomic and climate-related factors in rural and agrarian areas are likely to exacerbate this trend. However, Middle Belt and Southern cities such as Kumasi and Accra, whose economies primarily rely on services and industry, could also be affected by extreme heat, dry and wet events, potentially reducing their ability to further absorb this growing population and workforce and to generate economic opportunities in urban areas. As a consequence, the growth of informal settlements could accelerate, for example, and lead to adverse impacts on health, poverty, and could also lead to an increasing risk of social instability in urban areas.

<sup>4</sup> Multihazard Mitigation Council. 2006. "Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities." Washington: National Institute of Building Sciences. Prepared for FEMA.

### **Effectiveness and Efficiency**

The project will provide holistic and cost effective solutions for managing drainage and climate risks in Greater Accra. The investment decisions will be made based on objective and evidence based criteria, which are currently assessed through the **Accra Climate Risk Mitigation Strategy**. These criteria include social criteria, environmental criteria and impact potential as well as cost effectiveness and efficiency criteria (cost benefit ratio, operation and maintenance costs, etc.).

The part to be financed by the Green Climate Fund as grant resources will be equivalent to the “additionality costs“ for climate proofing Accra’s drainage infrastructure and to end-to-end early warning systems, which are considered as a global public good. **The overall project co-financing ratio of GCF funding is approximately 50 % of the total project expenses;**

Even though the total cost of the direct and indirect financial benefits of the proposed operation are hard to quantify, the long-term benefits, in terms of lives and properties saved, and new economic opportunities will be much higher than the implementation cost. The direct project beneficiaries will be (i) families, businesses, and offices located within one selected critical basin and (ii) entire Greater Accra Region’s population benefiting from better drainage, solid waste management, and flood preparedness. Indirectly the entire Greater Accra region will benefit due to the improvement in the living conditions, basic services (including solid and liquid waste), and reduction in water-borne diseases in the central business district.

Key outcomes of the proposed operation include benefits through:

- Improved preparedness to flooding: The proposed operation will include benefits from improved drainage, and flood management capacity in one drainage basin. Entire population living within Odaw river basin will indirectly benefit. A major study in US has found that in general, government flood risk management had a benefit cost ratio of 5:0;
- Strengthening early warning services has indeed been considered cost effective in many cases. Recent overview of the socio-economic studies have clearly indicated that the benefit to cost ratio of investing in hydromet is high, with returns of 3:1 to 15:1;
- Protection of key Investments: An estimated xx USD worth of economic assets are located in Odaw river basin, which can be potentially protected through project investments;
- Reduction in poverty caused by disaster and climate risks and overall improvement in quality of life in most vulnerable communities: Increased capacity of the Government at all levels to monitor, manage and inland and coastal flooding risks; and reduced vulnerability of infrastructure and public assets, households living in risk prone areas, reduction in income loss (livelihood, property and business) from flooding.

Targeted institutions are public services providing public goods and services. The private market in Ghana is not developed to compete with the public sector for provision of such public goods. Yet, a number of goods and services within the Project will be strengthened using the services provided by the private and public (international) sector and will be acquired within the context of the capacity building process (e.g., models, training, equipment, etc.). The initiative has been envisaged as a public service that will have benefits in multiple development sectors to build overall climate resilience, there is no risk of the investment crowding out private investments.

### **B.4. Engagement among the NDA, AE, and/or other relevant stakeholders in the country (max ½ page)**

#### **Consultations with stakeholders**

The project design is informed by a series of consultations with communities, local government and central government since the floods, which affected Ghana in June 2015. Following the floods of June 2015 an impact assessment has been conducted, which largely involved local governments and local communities followed by the CityStrength diagnostic in 2016 and the Accra Climate Risk Mitigation Strategy in 2017. The project team is currently working closely with the 25 MMDAs of Greater Accra to better understand priorities for the strengthening flood management.

Going forward extensive consultations are planned with communities and stakeholders in greater Accra in the preparation of the Greater Accra Climate Resilient and Integrated Development Project. These consultations include focus group discussions on flood risk management and climate change adaptation in all 16 MMDAs in October and November 2017 as part of the diagnostic study (Accra Climate Risk Mitigation Strategy), consultations with vulnerable communities in low income areas in the Odaw basin, consultations concerning environmental and social safeguards and gender specific consultations. Among others a working group with the gender focal points of the 25 MMDAs and those of involved ministries have been formed to actively guide the project preparation on gender specific issues.

#### **Accredited Entity**

The World Bank has had more than four decades of sustained engagement in Ghana, and in particular in the greater Accra region. With extensive experience gained in similar projects in Ghana and in other countries, and a track record of coordinating and complementing the initiatives of other development partners, the World Bank is well placed to provide a holistic package of support – both technical and institutional, in addition to the required financing. The improved local

capacity resulting from the project is expected to cascade to other drainage basins within Greater Accra region and in secondary cities, which are facing similar challenges as urbanization extends beyond Greater Accra Region.

### National Designated Authority

The Ministry of Finance as Ghana's National Designated Authority (NDA) to the Green Climate Fund has endorsed the concept note and has been closely involved in the formulation of this funding concept note. In fact the concept note was presented and reviewed in September 2017 by the multi agency committee that advises the NDA and supports the review of proposals.

## C. Indicative Financing/Cost Information (max. 3 pages)

### C.1. Financing by components (max ½ page)

Total cost per component/output and disaggregate by source of financing.

Component/Output	Indicative cost (USD)	GCF financing		Co-financing		
		Amount (USD)	Financial Instrument	Amount (USD)	Financial Instrument	Name of Institutions
Component 1: Drainage and flood management improvements within the Odaw Drainage Basin	144	90	Grant	54	Loan (IDA)	World Bank
Component 2: Improvements in solid waste management capacity	15	0	n/a	15	Loan (IDA)	World Bank
Component 3: Support to most vulnerable communities within the Odaw Drainage Basin	30	5	Grant	25	Loan (IDA)	World Bank
Component 4 : Project Management	11	5	Grant	6	Loan (IDA)	World Bank
<b>Indicative total cost (USD)</b>	200	100		100		

The World Bank and the Government of Ghana look back at a decades long partnership in support of integrated urban development in Greater Accra. With regard to its lending according to IDA and IBRD terms, the World Bank has continuously increased its commitments in Ghana from US\$230 million in 2013, to US\$ 410million in 2014, US\$ 712 million in 2015 and US\$ 730 million in 2016. The Greater Accra Climate Resilient and Integrated Development project is in addition part of a multi-phased programmatic approach, whereby the World Bank is committed to provide financing over three funding cycles on resilient urban development in greater Accra.

### C.2. Justification of GCF funding request (max. 1 page)

Green Climate Fund support for the **Greater Accra Climate Resilient and Integrated Development Project** is crucial to meet the additionality costs for climate proofing Accra's drainage and flood management infrastructure. The investment needs for extending the drainage network in Greater Accra, coastal protection, solid waste management systems, end-to-end early warning systems and climate proofing this public infrastructure are substantial, estimated between US\$ 750 million and US\$ 1 billion of investment needs. The additionality costs for climate proofing the drainage and food management infrastructure of Greater Accra include for example the cost increase for additional flood protection measures to keep the T50 protection level in 2075 instead of a predicted and modelled reduction.

As a lower middle-income country, the financial needs in Ghana are significant, while the Government is struggling to set aside resources from its stretched national budget to cover the basic services such as drainage, sanitation and civil protection. In addition, Ghana as a middle-income country has less access to concessional financing and traditional donor support than low-income countries and least developed countries. Addressing the flood management crisis in Ghana is expected to only worsen in the coming years through population growth, rapid urban expansion and climate change calling for an urgent need to increase the resources available for better adapting and managing floods.

While traditional financing from the Government and IDA resources are limited these can only cover the extension of the existing drainage network and support for addressing the immanent solid waste management, GCF funding will support the climate proofing of Accra's flood management and investing in end to end early warning systems. Without GCF involvement, the Government of Ghana cannot take these adequate steps to help vulnerable communities and the economy adapt to climate-related disaster risks. Investing now in climate proofing the investments in the drainage network will furthermore be more cost effective than retrofitting the drainage network in 40 years to then address impacts of a changed climate.

As the project will yield adaptation benefits that reduce the impacts of floods on vulnerable populations, it is fully in line with GCF's objective to invest in climate resilient development and to help vulnerable societies adapt to the impacts of climate change. With a focus on strengthening hydromet services, institutional capacity building and end user connectivity, the Project will enable durable systemic change with a potential for scalability and replicability.

The project builds upon Ghana's experience in implementing climate-related disaster risk management projects in the past. The strategies and policies, such as (I)NDC, the national climate change strategy, and the national disaster risk management strategy, underscore the need for hydromet strengthening. By reducing economic losses and increasing productivity, the Project will directly support climate resilient development. Investment in hydromet services is a "no regret" climate adaptation investment, particularly for a vulnerable middle-income country like Ghana.

#### **Rational for grant funding**

The proposed grant financing is adequate for the development of public basic services supporting the safety of citizens and protection of livelihoods against natural hazards and climate variability – and would catalyse in the longer term the gradual development of value-added services to directly support climate-resilient development planning and investments, with some economic return. Grant financing is furthermore justified as only "additionality costs" for adaptation to climate change have been put forward to GCF financing, while the traditional development financing will cover the remaining expenses. The overall project co-financing ratio of GCF funding is 50 % of the total project expenses.

### **C.3. Sustainability and replicability of the project (exit strategy) (max. 1 page)**

In order to ensure sustainability after the life of the project and to make a smooth transition to the post-project period, interventions will emphasize four key critical aspects learned from past investments.

#### (i) Strengthened Institutional capacity

- The project will strengthen institutional capacity of local government (metropolitan, municipal and district assemblies) and ministries, agencies and government departments to ensure effective and climate sensitive planning, budgeting, operation and maintenance; It will provide dedicated training, capacity building and on the job training for the involved stakeholders;
- Major policy-institutional support for enabling environment generation will be a one-time investment. It is not a recurring charge, and does not require an exit strategy.

#### (ii) Ensure cost effectiveness of the system and operations and maintenance of the system

- Cost effectiveness will be partly realized through improved cooperation between government agencies, private sector, civil society and other stakeholders. The project will provide technical assistance to design and implement a strategic operation and maintenance plan with ring fenced budget allocations.
- It is also important to note that investment operations will cover the capital cost of equipment and infrastructure as one-time costs. There is no inherent dependence in this component, and exit is relatively easy and straightforward.
- The project will also work with the Government of Ghana to ensure that equipment procured under the project is insured over its lifetime.

#### (iii) Ensure financial sustainability through improved business models and services.

- The project aims to develop business cases for "crowding in" private sector investors to, for example, contribute to the drainage infrastructure investments and develop some of the possibly reclaimed areas; The project aims to support in this way private sector involvement and thus guarantee the long term sustainability of these investments;
- The agencies benefiting from the project will comply with a covenant to build sustainable, long-term business models from the reliable operation of strengthened drainage systems in order to meet the costs of operation and maintenance of the services from their internal revenues and through national budget support.
- The World Bank would encourage the government, through existing country and policy dialogue, to allocate sufficient resources for operation and maintenance of the drainage network in greater Accra.

**D. Supporting documents submitted (OPTIONAL)**

- Map indicating the location of the project/programme
- Diagram of the theory of change
- Economic and financial model with key assumptions and potential stressed scenarios
- Pre-feasibility study
- Evaluation report of previous project
- Results of environmental and social risk screening

**Self-awareness check boxes**

Are you aware that the full Funding Proposal and Annexes will require these documents? **Yes**  **No**

- Feasibility Study
- Environmental and social impact assessment or environmental and social management framework
- Stakeholder consultations at national and project level implementation including with indigenous people if relevant
- Gender assessment and action plan
- Operations and maintenance plan if relevant
- Loan or grant operation manual as appropriate
- Co-financing commitment letters

Are you aware that a funding proposal from an accredited entity without a signed AMA will be reviewed but not sent to the Board for consideration? **Yes**  **No**